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SUPPORT & SALES hereby certify that annexed is a true copy of the  
Provisional specification in connection with Application No. PP 5877 for a  
patent by CON ANTON filed on 14 September 1998.

WITNESS my hand this  
Twenty-first day of October 1999

*A. M. Madl.*

ANNA MAIJA MADL  
ACTING TEAM LEADER  
EXAMINATION SUPPORT & SALES

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## PROVISIONAL SPECIFICATION

APPLICANT: CON ANTON  
NUMBER:  
FILING DATE:

Invention Title: METHOD OF AND APPARATUS FOR MANUFACTURING COMPLEX  
SHAPES

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The invention is described in the following statement:-

## METHOD OF AND APPARATUS FOR MANUFACTURING COMPLEX SHAPES

This invention relates to a method and apparatus for manufacturing complex shapes, and is particularly useful for use with band saws, and will be described in relation to this application.

The practice in the woodworking industry where a number of shapes have to be cut using a band saw, has been to mark each individual shape on the timber to be cut, and then for a tradesman to cut around the marking.

Whilst a skilled tradesman can do this relatively quickly and accurately it does take a substantial degree of skill and no matter how good the tradesman, the individual items are marginally different in shape, and the subsequent sanding which also acts to bring them to final shape and identity can be time consuming.

It is the object of the invention to provide means whereby articles can be manufactured specifically to shape and which will be directly reproducible.

The invention includes in a band saw, guide means adapted to cause a carrier to move past the saw blade on a predetermined path, whereby timber carried by the carrier can be cut rapidly and reproducibly to size.

In a first form of the invention the carrier has a groove on the underside which corresponds to the final shape required and located on the bed of the band saw are guide devices which can be received in the groove so that the carrier is constrained to follow the groove as it is moved through the saw.

In order that the invention may be more readily understood we shall describe one embodiment of the invention.

In this, the face of the band saw, which may be an auxiliary base adapted to fit over the saw's original base, is provided with a pair of guide members> In this case they may be rollers, having their axes normal to the base and which are spaced apart along a line parallel to the blade of the saw.

As discussed hereinafter these may be moveable along the line.

The carrier may be a wooden member, although it could be made of aluminium or some other metal if it is to be used to produce a very large number of articles, and the cost of producing a metal carrier would be justified.

In the underside of the carrier there is provided a groove which reflects the shape of the article to be cut and which is of a width so as to closely receive the guide members.

It may be preferred that the side of the carrier, which is directed towards the blade, have a similar curve which terminates just before the blade so that when the carrier is moved past the blade, there is no direct contact between the blade and the carrier but at all times the carrier is close to the blade.

Alternatively the carrier could be made so that its width is such that, at the closest point of the groove to the blade, the carrier is spaced from the blade by a small distance and, of necessity and every other position is spaced from the blade by a further distance.

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~~The first of these is preferred basically because as will be understood later, it supports the~~  
timber being cut throughout the period of the cut but if this is not necessary, the other form may be cheaper.

Fitted to the carrier there are clamp means which are adapted to hold the timber being cut and these are normally relatively quick release clamps to enable a piece of timber to be located and removed rapidly.

When the device is to be used the timber to be cut is located on the carrier and clamped thereto.

If the carrier has its inner edge in the required curve, the first possibility discussed above, the timber must be clamped so that it overlays the carrier throughout the length of the carrier.

In this way when the carrier/timber combination is caused to move through the band saw then the constraints on the carrier by the groove co-operating with the guide means will be such that the timber passes through the band saw and because of the transverse movement of the carrier forced on it by the groove, the required shape is provided on the edge thereof.

If, of course, a cut is being made for a second side of a member, assuming a member is to be symmetrical, then the timber must extend from the carrier by a distance equal to the required width of the member to be manufactured.

It will be seen that correctly used the device of the invention can, not only, ensure that curves in timber, or for that matter plastic or other soft material, can be very closely replicated on separate pieces of timber or other material but also such curves can be replicated on two different sides of a single piece of timber, so that such articles as chair legs or arms which are curved can be readily manufactured and the devices so manufactured can be of extremely close tolerance, needing a minimum of finishing in the form of sanding or the like.

In the earlier part of the specification we stated that the guide members could be moveable to be nearer or further apart.

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Where there are relatively slow curves it is desirable to have these apart to give maximum stability and reproducibility.

Where the curves are relatively tight then to get the best following of the curves it is desirable to have the guide members closer together.

In a modified form of the invention, I may prefer to have the guide members located in a slot along which they are moveable and the members are biased towards the opposite ends of the slot. In this arrangement, the optimum positioning of the guide members will occur automatically. Where the members are moving along a line effectively parallel to the saw blade, they will adopt positions at the ends of the slot, as the curve becomes sharper, they will move closer together against their bias and the degree of movement will depend on the sharpness of the curve. When the curve again becomes shallower, they will move apart.

Also in this specification I have described a pair of guide members each of which is a relatively close fit within the groove.

These guide members may be in the forms of guide wheels or the like, which will run along one side of the groove as the carrier is being passed through the band saw, and the cut is being made, or they could be posts which have a low frictional resistance with the sides of the groove so that there are no moving parts, or they could be in the form of pairs of members, one of which is adapted to run on each side of the groove with the pair being basically at right angles to the blade of the saw and in this case a wider groove could be used if required.

Also, rather than using a cutout recess in the underside of the carrier member, we could have a pair of recesses which are parallel and spaced, or even a central portion which is downwardly extending and which has, on each side, the same shape and guide members on the exterior of this, against which the movement could occur.

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As mentioned earlier the form of clamp is not particularly critical to the invention. There are a number of types of clamps known in the woodworking industry which would equally well be useable with the invention.

It will be seen however that the invention provides something which has not previously been available in the art and that is direct reproducibility of a particular shape without any

necessity of marking and without the need for great skill in passing the timber being sawn through the band saw.

Variations and modifications may be made in the device of the invention without departing from the spirit and scope thereof.

DATED this 14 day of September, 1998

CON ANTON

By his Patent Attorneys

A TATLOCK & ASSOCIATES

*Alfred Tatlock*

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